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Notice of Allowability

Application No.

10/627,457

Examiner

Hai L. Nguyen

Applicant(s)

NGUYEN ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment filed on 8/30/2004.
2. ☒ The allowed claim(s) is/are 3-7,10-14,16-18 and 20-24.
3. ☒ The drawings filed on 25 July 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

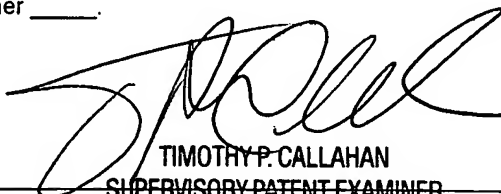
Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |


 TIMOTHY P. CALLAHAN
 SUPERVISORY PATENT EXAMINER

DETAILED ACTION

Response to Amendments

1. The amendments received on 8/30/2004 have been reviewed and considered with the following results:

As to the objection to the drawings, Applicant's clarifications have overcome the objection, as such; the objection has been withdrawn.

As to the objections to the specification, Applicant's clarifications and amendments of the specification have overcome the objections, as such; the objections to the specification have been withdrawn.

As to the rejections to the claims, under 35 U.S.C. 112, 2nd paragraph, Applicant's clarifications have overcome the rejections, as such; the rejections have been withdrawn.

As to the prior art rejections, Applicant's amendments of the claims have overcome the prior art rejections mailed on 6/30/2004, as such; the prior art rejections have been withdrawn. The case is found to be in allowance condition.

REASON FOR ALLOWANCE

2. The following is an examiner's statement of reasons for allowance:

The prior art of record does not disclose or suggest a delay lock loop (DLL) circuit, and a method of use thereof, as recited in claims 3 and 10; specifically the limitation directed to the control circuit (403 in instant Fig.10) comprises a shift clock generator circuit (1001) and a shift enable circuit (1002, 1003); the shift clock generator circuit provides a plurality of control signals (CKA, CKB, CKC, CKD) to a first subset of the control input terminals (Ci's in instant

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Fig.6) of the bi-directional shift register and clock multiplexer (402 in instant Fig.6); and the shift enable circuit provides a plurality of shift enable signals (SLA, SLB, SLC, SLD, SRA, SRB, SRC, SRD) to a second subset of the control input terminals of the bi-directional shift register and clock multiplexer, being configured in a delay lock loop (DLL) circuit (as shown in Fig. 4).

The prior art of record does not disclose or suggest a delay lock loop (DLL) circuit (as shown in Fig. 4), and a method of use thereof, as recited in claims 6 and 13; specifically the limitation directed to the bi-directional shift register and clock multiplexer (402 in instant Fig.6) comprises a plurality of shift register circuits (702 in instant Fig.7, 802 in instant Fig.8) coupled together through a plurality of multiplexer circuits (701, 801), each of the shift register circuits being bi-directional and storing an associated token bit, each succeeding one of the shift register circuits comprising a smaller number of memory elements and each succeeding one of the multiplexer circuits comprising a smaller number of multiplexers until a single one of the shifted intermediate clocks signals has been selected (SEL_CLK).

The prior art of record does not disclose or suggest a system for synchronizing a feedback clock signal from a clock network with an input clock signal, and a method of use thereof, as recited in claims 18 and 20; specifically the limitation directed to means (1002/1003 in instant Fig.12) for verifying that a selected one of the two directions is compatible with a position of the first token bit within the first shift register (MA_0 - MA_15 in instant Fig.6), which has a very specific function as disclosed in the specification (page 15, line 19 through page 15, line 27).

The prior art of record does not disclose or suggest a method of synchronizing a feedback clock signal from a clock network with an input clock signal, as recited in claim 16; specifically

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the limitation directed to the step of shifting a second token bit in either of the two directions within a second shift register (MB_0 - MB_7/ MC_0 - MC_3/ MD_0 - MB_1 in instant Fig.6), wherein selecting from among the intermediate clock signals the selected clock signal based on the location of the first token bit within the first shift register (MA_0 - MA_15) further comprises selecting from among the intermediate clock signals (CLK0-CLK15) the selected clock signal based on a location of the second token bit within the second shift register.

The prior art of record does not disclose or suggest a multiplexer circuit (402 in instant Fig. 6), as recited in claim 21; comprising a specific structural limitations N data input terminals (Ci's of MA_0 - MA_15), wherein N is an integer; an output terminal; a first bi-directional shift register (MA_0 - MA_15) comprising N bits (CLK0 - CLK15) and N output terminals (Co's of MA_0 - MA_15), wherein exactly one of the N bits has a first token value (Q of MA_0); an N-to-M multiplexer (MA_0 - MA_15 through MD_0 - MD_1) comprising N data input terminals coupled to the N data input terminals of the multiplexer circuit, N control terminals coupled to the N output terminals of the first bi-directional shift register, and M output terminals, wherein M is an integer less than N; a second bi-directional shift register (MB_0 - MA_7) comprising M bits (Ci's of MB_0 - MA_7) and M output terminals (Co's of MB_0 - MA_7), wherein exactly one of the M bits has a second token value; and an M-to-1 multiplexer (MD_0 - MD_1) comprising M data input terminals. coupled to the M data output terminals of the N-to-M multiplexer, M control terminals coupled to the M output terminals of the second bi-directional shift register, and an output terminal (SEL_CLK) coupled to the output terminal of the multiplexer circuit.

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3. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai L. Nguyen whose telephone number is 571-272-1747 and Right Fax number is 571-273-1747. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Callahan can be reached on 571-272-1740. The official fax phone number for the organization where this application or proceeding is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-1562.

HLN


September 28, 2004